

Jianjin Xu

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EDUCATION

Columbia University	New York, NY
M.S. in Computer Science	Aug 2019 – Dec 2020
Tsinghua University	Beijing, CN
B.Eng. in Computer Science	Aug 2015 – July 2019
• Research interests: GAN, Interpretability of Neural Networks, Re-Identification	
• Programming: C/C++, Python, Lua. (Pytorch, Tensorflow, Torch, Caffe)	
• Awards and Honors: 2 nd Prize for 2017 Mathematical Contest in Modeling	02/2017
3 rd Prize in 36 th Challenge Cup Competition of Undergraduate Curricular Academic Science and Technology Works, Tsinghua University	04/2018

RESEARCH EXPERIENCE

Frame Difference-Based Temporal Loss for Video Stylization	06/2017 – 11/2018
<i>Supervised by Prof. Xiaolin Hu</i>	
<ul style="list-style-type: none">Proposed a simple loss function to address the temporal stability problem in video stylization (transfer the style of video into an artwork).Applied the frame-difference based loss on pixel and feature level to replace existing optic-flow based loss.Won over existing methods by large scale user study (4800 votes) on both frame quality and video stability.Submitted to PAMI as the 2st author (1st author is supervisor).	
Unrestricted Vehicle Re-Identification System with Deep Metric Learning	06/2018 – 09/2018
<i>Internship at MSRA, Supervised by Lead Researcher Xun Guo</i>	
<ul style="list-style-type: none">Developed independently a re-identification system that inputs raw videos of traffic monitors and identified the same vehicle appeared. The system first detects vehicle by faster RCNN in Caffe2/Detectron, then conducts in-camera tracking and cross camera matching by learned deep metrics.Trained the deep metric model on VeRi dataset, cross validated on VID dataset and applied to real world scene.The problem that different vehicles were confused in similar viewpoint was identified and addressed by modified sampling ratio in triplet loss.	
Neural Painter: A smart image manipulator based on simple line-drawings	10/2017 – 04/2018
<i>Supervised by Prof. Xiaolin Hu</i>	
<ul style="list-style-type: none">Aimed at modifying image through easy user directions, in the form of simple line-drawings.Built a system covering dataset preparation, GAN core technology implementation, frontend and backend development as team leader and 1st contributor.Won 3rd prize in 36th Tsinghua Challenge Cup and awarded outstanding project in Peking Student Innovation and Entrepreneurship Training Program.	
Condition Object Proposal on Classification by Layer-wise Relevance Propagation	10/2016 – 06/2017
<i>Supervised by Prof. Xiaolin Hu</i>	
<ul style="list-style-type: none">Studied independently the math of LRP, revealed its correlation gradient based visualization, which can be used to accelerate the computation of LRP.Attempted to condition object proposal branch of SharpMask (Pinheiro et al. 2016) on the result of classification branch, by integrating LRP information of the latter to the former.	

SELECTED PROJECT

Interactive Edit in Aesthetic Painting Generation System	07/2018
<i>Supervised by Prof. Jia Jia</i>	
<ul style="list-style-type: none">Added an interactive image edit module to original painting generation system (AI painting: An Aesthetic Painting Generation System, ACM MM'18).GrabCut (Rother et al. 2004) was used for interactive segmentation, GAN completion network (Iizuka et al. 2017) was used for image inpainting, poisson image edit (Perez et al. 2003) was used for image fusion.	
Speech Recognition in English Speech Rating System	06/2016 – 09/2016
<i>Internship at Boxfish</i>	
<ul style="list-style-type: none">Successfully constructed a Bidirectional LSTM and Connectionist Temporal Classification loss function.Trained models with TIMIT and the company's record data.	
A Large Scale Spiking Neural Network Simulator based on CUDA	05/2016 – 12/2016
<i>Supervised by Prof. Feng Chen</i>	
<ul style="list-style-type: none">Developed independently a parallel algorithm by CUDA able to speed up around 20 times than CPU.	

EXTRACURRICULAR ACTIVITIES

• Chairman of Tsinghua Future Internet and Computation Club (Microsoft Student Club)	06/2018 – Present
• Volunteer of Computing in the 21 st Century Conference and Asia Faculty Summit 2018	11/2018
• Volunteer of Global Artificial Intelligence Technology Conference	04/2016